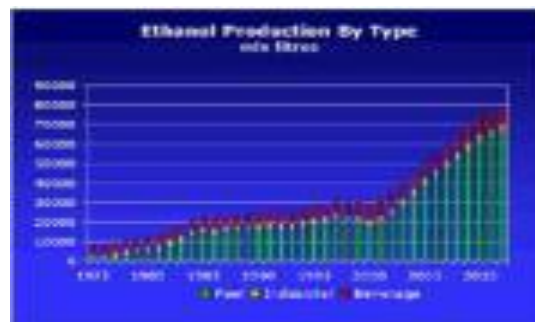


Ethanol from Natural Gas: An obvious move



With corn prices hitting new highs every day because of the nationwide drought and natural gas prices lower than anyone thought they could go and slated to stay low, there is a good reason for the government to change current legislation regarding feedstocks for the production of ethanol that is blended into motor fuel.

Readers will recall that the government passed the Renewable Fuels Act that led to the construction of a large number of so-called Gasohol plants that produce ethanol from corn and up to last year received a subsidy to make this production economically feasible. The background was an EPA finding that blending ethanol or other alcohols into gasoline produced a cleaner-burning fuel that reduced the production of smog caused by the emission of unburned or partially burned gasoline. The use of corn became a boon to farmers who now had another outlet for their crop and the ethanol mandate led to the construction of a whole new industry to turn corn into a motor fuel .

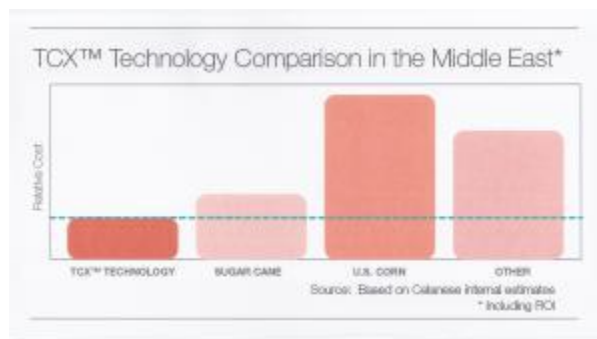


The downside was and is that corn is a food product so that using it to make a fuel, with government subsidies, is arguably a negative for the global food supply and has the effect of raising the price of corn.

For this reason, the government has encouraged- in fact mandated- that refiners use increasing amounts of ethanol and other fuel products made from *cellulosic* materials (switchgrass, corn stalks, wood chips, etc) for gasoline blending. However, no such material is commercially available as yet since the technology is still under development and its future uncertain. Meanwhile, the amount of produced ethanol (all from corn) will increase every year through 2015.

There is an obvious step to take. We should amend the current legislation to allow the production of ethanol from natural gas. A technology for this was actually used in the 1960s by US Industrial Chemicals

Corporation and by Shell and is still in use in Saudi Arabia today. A new, quite different technology has recently been developed by Celanese Corporation and will be installed in a very large ethanol plant in China. The illustrated



Source: Celanese

comparison of this technology with corn-based ethanol on a Middle East basis is difficult to analyze since no feedstock prices are provided, but U.S. petrochemical feedstock prices are now in close parity with the Middle East. It is clear that ethanol can today be produced in the U.S. from natural gas at a lower cost than from corn. But this will not happen unless the government allows at least some production of fuel ethanol from gas, which is not a “renewable” fuel and therefore not currently eligible as an ethanol feedstock.. Building a few ethanol-from-natural gas plants will still keep most of the corn-based industry in operation, given the huge amount of corn-based ethanol now being produced. But there would be a beneficial effect on corn prices as less of this material is used to make a fuel. A subsidy should remain in place for cellulosic ethanol, since it is in our interest to use waste organic materials to make a needed product.

If the government allows some gas-based ethanol to be produced, there will be a hue and cry from the corn-based ethanol producers (and their congressmen) who will feel their industry threatened. So, the government must balance the objectives. What the government might do is to allow a certain amount of gas-based ethanol to be produced by selling licenses to do so. The government must then balance the market-based incentive for petrochemical producers to make ethanol from gas against the effect of its policy on corn price, on the corn-based ethanol producers who established an entire industry as a result of government actions, and on the price of fuel ethanol. This can be made to work, in my opinion.

Source:<http://chemengineeringposts.wordpress.com/2012/08/23/ethanol-from-natural-gas-an-obvious-move/>